

REMARKS:

Claims 1-23 are pending in the application. In the Office Action, claims 1-21 have been rejected. Claims 22 and 23 are new. Claims 5 and 8-9 are being cancelled and the features of the invention recited in those claims have been added to independent claims 1 and 13. Because the claims were rejected on the basis of new art cited by the Examiner, the current Action is non-final.

Applicant appreciates that the Examiner has acknowledged Applicant's claim for domestic priority by checking box 14 on the Office Action Summary form.

The following remarks are directed to new claims 22 and 23 and the rejections of claims 1-21. Before addressing those claims, however, a summary of the invention is provided.

The Present Invention

In the application, the claims are directed to a composite building material and panels made therefrom. Building panels made from the claimed composite material are integral components of a structure. The roof, walls, trusses, floor, and door and window openings of the structure are all made of or from one or more panels. The invention involves an independent building system that does not require other conventional building materials to assemble the structure.

In particular, the building panels include raised ribs extending perpendicular to and across the upper or the lower face of the panels, as recited in amended claim 1. Those ribs are proportioned and positioned to support axial and dead live loads as well as to resist bending stresses in the panel.

New claims:

Applicant hereby submits new claims 22 and 23 with this paper. Those claims are being added to the application to better protect the disclosed invention. The feature of the

invention recited in those claims is disclosed on page 10 of the original application. Claim 17 was amended to recite the same feature. No new matter is being introduced.

Amendment to claim 10:

Claim 10 was amended to clarify that only “some of” the panels making up the “structural panel system” of claim 1 are used to form a roof truss. Applicant wishes to point out that this amendment was not made in response to any objection or rejection by the Examiner and it does not narrow the scope of the claimed invention. Thus, Applicant is entitled to the full scope of protection afforded the claimed invention without limitation (subject to any relevant prior art).

Claim Rejection - 35 U.S.C. § 112, second paragraph:

Claim 16 has been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 16 has been amended to omit the phrase “and other structural materials” in accordance with the Examiner’s suggestion. Applicant respectfully requests that the Examiner’s rejection be withdrawn.

Claim Rejection - 35 U.S.C. § 102(b)

The Examiner has rejected claims 1, 5, 13 and 16 under 35 U.S.C. § 102(b), as being anticipated by U.S. Patent No. 5,317,848 to *Abbey*. For the reasons noted below, Applicant respectfully traverses the Examiner’s rejection and submits that *Abbey* does not anticipate the amended claims.

Abbey discloses a precast corner panel that “relates to modular construction of buildings, edifices and dwellings utilizing precast waffle panels.” Col. 1, lines 8-10. Figures 1 and 1a both illustrate embodiments of the disclosed waffle side panel, the use of which for modular construction is well-known to those of ordinary skill in the art. Figure 7 illustrates an embodiment of the invention whereby the disclosed waffle panels and claimed corner panels are used to make a poured building foundation.

Claim 1, as amended, recites a “structural panel system” wherein some of the panels are fastened together to define a wall, some are fastened together to form a floor and some are fastened together to form a roof. *Abbey* does not disclose that the side panels 10, as shown in FIGS. 1, 1a and 7, can be formed into a roof or floor. Only walls are disclosed in *Abbey*. Accordingly, Applicant submits that amended claim 1 is not anticipated by *Abbey*. Withdrawal of the § 102(b) rejection is requested.

Claims 2-4 Rejection - 35 U.S.C. § 103(a)

The Examiner has rejected claims 2-4 under 35 U.S.C. § 103(a), as being unpatentable over *Abbey* in view of U.S. Patent Appl. Publication No. 2001/0032430A1 to *Pashkam et al.* For the reasons noted below, Applicant respectfully traverses the Examiner’s rejection and submits that the combination of *Abbey* and *Peshkam et al.* does not establish a *prima facie* case of obviousness.

With regard to claims 2 and 3, the Examiner asserts that *Abbey* teaches each feature of the claimed invention except a polymer composite material and that *Peshkam et al.* teaches a glass fiber reinforced polymer and it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to have combined the two disclosures to come up with the claimed invention (the choice of recited materials being equally satisfactory).

As noted above, *Abbey* does not disclose or teach that the side panels 10, as shown in FIGS. 1, 1a and 7, can be formed into a roof or floor. In fact, there is no teaching that the panels can be oriented horizontally and connected to other, upright panels to form a structure having a floor and walls. In fact, *Abbey* does not disclose any means for making a physical attachment between a horizontal panel (i.e., a floor), a sloped panel (i.e., a roof) and a vertical panel (i.e., a wall). All it discloses is that the panels may be stacked “one-on-top-of-the-other in multi-story construction.” Col. 4, lines 30-31.

Moreover, to construct the 8-inch thick panel disclosed in *Abbey* from a composite or fiber reinforced polymer disclosed in *Peshkam et al.* would be very complicated and require an uneconomical process. *Abbey* teaches that the panels can be cast using molding

equipment readily available in the trade. Col. 3, lines 14-16. As disclosed in *Peshkam et al.*, the structural member has an outer shell and at least one arcuate or diagonal reinforcing member which is reinforced with different volumes of longitudinally- and laterally-oriented fibers (as determined by the application to which the structural member is to be used). To achieve that construction, *Peshkam et al.* teaches that the structural member is preferably manufactured by a pultrusion or prepreg process to achieve the desired orientation of fibers. Page 3, paragraph [0050]. Thus, one of ordinary skill would have not have been motivated to modify the panels in *Abbey* to use the critical mixture of reinforcing materials and manufacturing process disclosed in *Peshkam et al.* to come up with the claimed invention because of the complexity and cost.

With regard to claim 4, for the same reasons noted above, one of ordinary skill would have not have been motivated to modify the panels in *Abbey* to form a roof and floor according to the present invention.

Accordingly, Applicant submits that claims 2-4 are not obvious over the combination of *Abbey* and *Peshkam et al.* Withdrawal of the § 103(a) rejection is requested.

Claims 1, 5 and 6-10 Rejection - 35 U.S.C. § 103(a)

The Examiner has rejected claims 1, 5 and 6-10 under 35 U.S.C. § 103(a), as being unpatentable over U.S. Patent No. 5,327,699 to *Khan et al.* in view of *Abbey*. For the reasons noted below, Applicant respectfully traverses the Examiner's rejection and submits that the combination of *Khan et al.* and *Abbey* does not establish a *prima facie* case of obviousness.

Applicant has cancelled claims 5, 8, and 9, thereby rendering the Examiner's rejection moot with respect to those claims.

The Examiner asserts that *Khan et al.* teaches a 45-degree miter cut and a conduit as recited in claims 6 and 7, respectively. With respect claim 6, in *Khan et al.*, a 45-degree angle miter cut is made for interior wall modules, which are joined by corner molding points to non-load bearing walls. The load-bearing wall in *Khan et al.* does not specify a miter cut, but rather discloses a corner post onto which wall modules are attached. Therefore,

Applicant respectfully submits that there is no teaching in *Khan et al.* to combine *Khan's* miter cut on an interior wall structure with *Abbey's* panel to come up with the load-bearing capability of the claimed invention. Further, *Abbey* teaches away from adding a 45-degree angle. It specifically teaches using a precast corner piece, not two separate pieces attached together. Thus, one of ordinary skill in the art would not have combined *Khan et al.* and *Abbey* to come up with the invention recited in claim 6.

With respect to claim 7, the Examiner contends that *Khan et al.* does not teach each feature of the structure of the claimed panel but that it would have been obvious to one of ordinary skill in the art at the time of the invention to construct the building structure disclosed in *Khan et al.* with the panels disclosed in *Abbey* to come up with the claimed invention. However, *Khan et al.* does not disclose panels having "a plurality of raised ribs extending perpendicular to and across one of the upper and lower faces of the panels" as recited in claim 1, from which claim 7 depends. In fact, there is no teaching in *Khan et al.* to use ribs of any kind. The panels in *Khan et al.* use conduit studs 76 (see FIGS. 5 and 7) positioned between two surface panels to provide dimensional stability for the panels. Therefore, the panels would not need ribs to provide stability. Nothing in *Abbey* teaches that it would be better to use the ribs of the precast waffle panel in place of the conduit studs. Thus, one of ordinary skill in the art would not have combined *Khan et al.* and *Abbey* to come up with the invention recited in claim 7. Withdrawal of the § 103(a) rejection is requested.

Claims 11 and 12 Rejection - 35 U.S.C. § 103(a)

The Examiner has rejected claims 11 and 12 under 35 U.S.C. § 103(a), as being unpatentable over *Abbey*. For the reasons noted above with respect to claim 1, Applicant respectfully traverses the Examiner's rejection and submits that *Abbey* does not establish a *prima facie* case of obviousness with respect to claims 11 and 12. Withdrawal of the § 103(a) rejection is requested.

Claim 14 Rejection - 35 U.S.C. § 103(a)

The Examiner has rejected claim 14 under 35 U.S.C. § 103(a), as being unpatentable over *Abbey* in view of U.S. Patent No. 4,168,924 to *Draper et al.* For the reasons noted above, Applicant respectfully traverses the Examiner's rejection and submits that the combination of *Abbey* and *Draper et al.* does not establish a *prima facie* case of obviousness.

Amended Claim 13, from which claim 14 depends, recites a "structural panel system" wherein some of the panels are fastened together to form a wall, some are fastened together to form a floor and some are fastened together to form a roof. *Abbey* does not disclose that the side panels 10, as shown in FIGS. 1, 1a and 7, can be formed into a roof or floor. Only walls are disclosed in *Abbey*. Accordingly, Applicant submits that amended claim 14 is not obvious over *Abbey*.

Draper et al. teaches reinforcement of hydraulic and asphalt concrete by embedding at least one rigid plastic grid of high-density polyolefin having a coefficient of expansion equal to or greater than the specific type of concrete. Preferred material for the reinforcement grid depends on the base concrete the grid is reinforcing. *Draper et al.* does not teach construction of a panel out of a single base material. *Draper et al.* discloses a polyolefin that refers to the reinforcement, not the base material. Applicant submits that one of ordinary skill in the art would not have used *Draper et al.*'s polyolefin material in place of material used in the *Abbey* precast corner panel to come up with the claimed invention. Withdrawal of the § 103(a) rejection is requested.

Claim 15 Rejection - 35 U.S.C. § 103(a)

The Examiner has rejected claim 15 under 35 U.S.C. § 103(a), as being unpatentable over *Abbey* in view of *Peshkam et al.* U.S. Patent No. 4,168,924 to *Draper et al.* For the reasons noted above with respect to claim 2 and 3, Applicant respectfully traverses the Examiner's rejection and submits that the combination of *Abbey* and *Peshkam et al.* does not

establish a *prima facie* case of obviousness of claim 15. Withdrawal of the § 103(a) rejection is requested.

Claims 17-21 Rejection - 35 U.S.C. § 103(a)

The Examiner has rejected claim 15 under 35 U.S.C. § 103(a), as being unpatentable over U.S. Patent No. 6,604,328 to *Paddock* in view of *Abbey* and U.S. Patent No. 5,268,226 to *Sweeney*. As noted below, Applicant respectfully traverses the Examiner's rejection and submits that the combination of *Paddock*, *Abbey* and *Sweeney* does not establish a *prima facie* case of obviousness of amended claim 17 and claims 18-21.

Paddock discloses a portable cabin composed of, in addition to panel pieces, studs, floor supports, rafters, rim joists, posts and ties made from (cold-formed) welded steel angles and other shapes, onto which the roof, wall and floor panels are attached. The cabin derives its structural integrity from these welded shapes. In contrast, an embodiment of the structure built from the claimed invention does not incorporate steel shapes. Rather, it derives its structural strength from joining together basic panels and some configurations of the basic panel to form a permanent enclosure. Further, the present invention is not aimed at structures that can be disassembled, loaded onto a pickup truck and re-assembled at another site like the device disclosed in *Paddock*.

Sweeney teaches a panel composed of an inner core of polystyrene sandwiched between two outer layers of non-woven fabric bonded by a cement mixture. The lamination of these three layers into a monolithic composite provides the high strength of the panels made there from.

None of the cited references alone, or in combination with each other, teaches the combination of elements recited in amended claim 17. Amended claim 17 recites "at least one longitudinally-extending reinforcing rod attached to the edge of the panel." None of the cited references teaches using a reinforcing rod. Withdrawal of the § 103(a) rejection is requested.

With regard to method claims 20 and 21, Applicant respectfully disagrees with the Examiner's assertion that the combination of *Paddock*, *Abbey* and *Sweeney* teaches the specific method of constructing a structure following the steps recited in claim 20. As noted above, *Abbey* does not teach using the precast waffle panels for anything but walls. Moreover, there is no teaching or motivation in *Paddock* to use the panels in *Abbey* to form a roof or a floor, which is a use they were not designed for. Since the invention of claim 20 includes the step of fastening structural panels together in accordance with a schematic drawing by abutting the flange of one panel to the flange of another panel to form the horizontal floor, roof and wall, the combination of *Paddock* and *Abbey* fail to establish a prima facie case of obviousness with respect to the invention as a whole. Since claim 21 depends on claim 20, that claim is not obvious either. Withdrawal of the § 103(a) rejection is requested.